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***UNCAGED* boxed-up**

In this chapter I reflect on my personal experience of working towards a ‘mixed-mode’ PhD in Electronic Arts, which has been completed in 2006 and was funded by an AHRC doctoral award. In particular, I will look at the relationships between the theoretical and reflective dimension of my thesis and the making, exhibition and documentation of my artworks. This will include a discussion of issues arising from the combination of physical and digital outputs used for the formal delivery of my thesis. Interestingly, this area of inquiry also lies at the very heart of my PhD research, both written and practical, which is an exploration of relationships and transitions between the physical world and the digital world of computers. Hence, within the context of *Digital Dissertations*, I felt it pertinent to provide a detailed account of my PhD research activity; starting with my quest to create novel ways to link the physical with the digital domain and leading towards a philosophical examination of the ontological difference between the ‘real’ and the ‘virtual’. The chapter will conclude with a critical evaluation of my PhD project and make some suggestions how it might have been improved.

While there is an abundance of terms applied, more or less interchangeably, to various modes of research involving a combination of practical and a written outputs - such as practice-led, practice-based, practice-as-research, research-through-practice, etc. - I have chosen the, arguably, more neutral term ‘mixed-mode research’ to refer to my own approach. For me, this term best captures the notion that the practical and theoretical parts of my research are deeply intertwined and advance in a constant dialogue. Importantly, while theoretical concerns and critical evaluations of my artworks feed back into the process of creation, my practice is never a means to respond to a construct of primarily theoretical issues or questions.

Motivation

Regarding my PhD project, the initial motivation to focus on the exploration of relationships between the physical world and the virtual world of computers can probably be linked to several practical and theoretical inputs. However, I believe there is one key event, which has helped to concretise a formerly rather subconscious artistic inclination towards this direction. During a conference on computer music in Barcelona in November 2001¹, a EU project officer introduced a new research initiative which, on the whole, was concerned with improving the relationships between virtual technologies and physical spaces. The presentation introduced the concepts of 'Mixed Reality'² and 'Presence Research'³ and, in particular focused on the scenario of video conferences, with the question of how to enhance the notion of 'being there' (in the physical space) of those participating in a conference via a remotely linked video screen. I was immediately fascinated by the underlying idea of the presentation, to look for novel ways to extend the virtual world into the physical world and vice versa, and to mix the two domains more or less seamlessly.

Certainly, the conference presentation in Spain provided an academic research context, including an appropriate vocabulary, which would at least initially serve as a framework for my new artistic endeavours. On the other hand, I believe that on a more subconscious level, I had already been working towards the notion of combining physical elements with the virtual world of computers. In particular, I would argue that my new artistic approach was a direct development – at least from a perceptual and technical point of view - of my sound installation *Staccato Death/Life*, created in April 2001.

Staccato Death/Life features various household objects which are 'sonified' by electromechanical beaters controlled by a computer. The computer functions as

¹ 'MOSART Workshop on Current Research Directions in Computer Music' held in Barcelona at the Pompeu Fabra University from 15-17 November 2001.

² 'Mixed Reality' has now become a standard notion in areas like media art, architectural design as well as medicine. It refers to environments that mix computer generated realities with (representations of) the physical or 'real' world.

³ 'Presence Research' is concerned with the notion of 'being there'. It is often applied to the area of Virtual Reality with the rationale to measure how much a participant is immersed within a virtual environment.

a dual interface: in 'composer mode', the different beaters can be triggered directly by participants via an on-screen push-button interface; in 'automatic play mode', the computer randomly selects from different (musical) algorithms which have been created by composers from all over the world as a response to an online call for contributions.

Even though *Staccato Death/Life* was originally conceived with a different idea in mind, i.e. to create a 'performance situation' focused on the relationships between everyday objects and their sonic characteristics rather than on the (musical) gestures and interpretations of a live player, I became over time more and more interested in the relationship between the computer and the physical sculpture.

My new interest was partially triggered by my observations and discussions with audiences during the initial exhibition at the 291 Gallery in London during May 2001. Despite the fact that the user interaction of *Staccato Death/Life* is very basic, I would argue that participants were simply fascinated, at that time, by the fact that their action in the virtual domain causes an event in the physical domain. In fact, people appeared to be more intrigued by the 'magical' relationship between the computer and the physical sculpture than by the sounds themselves; an assumption which has often been confirmed in conversations with participants.

First ideas

Almost immediately after the conference presentation in Barcelona, I had some initial ideas as to how I could approach the notion of Mixed Reality. I feel it is useful to briefly outline at least one of the initial practical studies I designed on the basis of these ideas. This will provide a background for the subsequent section, in which I will briefly discuss the theoretical considerations that would, to some extent, inform the progression from these first ideas towards *UNCAGED*,

a series of six 'telesymbiotic'⁴ installations, constituting the primary practical output of my PhD investigations⁵.

From a technical point of view, my initial studies were based on a very similar hardware and software set-up as *Staccato Death/Life*. For me this is an important fact, because it reflects the notion that my artistic ideas are often based on the scope of my technical horizon. I do not mean this in a restrictive sense, nor to say that my creations are simply an application of my technical skills. Rather, it underlines my conviction that as an artist working with and about technology, it can be advantageous to have a strong command of a certain set of tools in order to realise ideas more or less spontaneously - that is, without the mediation through technical experts or having first to acquire the necessary skills in order to realise a particular idea.

One of those studies, which would later be developed into the exhibit *PONG (telesymbiotic version)*, features a virtual ball moving back and forth from the left to the right edge of the computer screen. Two thrust-pin type solenoids are positioned in close proximity to the left and right edge of the screen. Whenever the ball bounces against either edge of the screen, a trigger impulse is sent to the respective solenoid and its thrust-pin hits the edge of the screen where the ball is positioned. The combination of the sound produced by the impact of the solenoid's thrust-pin on the computer housing and its clearly visible mechanical action, gives the observer the impression that the virtual ball is being kicked from one side to the other side by the activity of the solenoids.

After I had transformed my initial ideas into concrete practical examples and had time to reflect on my creations, I became increasingly interested in the physico-philosophical implications of my approach. For instance, I could sense a certain

⁴ The term telesymbiosis is used in biological research and literally means 'symbiosis at a distance'. It has been adopted to describe the quasi-symbiotic relationships - between the physical world and the distant computer world - in *UNCAGED*. Admittedly, the term might be misleading as it is also used (synonymously with the term 'telepresence') in the context of Virtual Reality, where it refers to a person's feeling of being present in a virtual or remote environment.

⁵ Photos and video recordings of *UNCAGED* can be accessed at: www.telesymbiosis.com

relationship of my experiments to the quantum physical notion of non-locality, as proposed by the physicist Niels Bohr, and its implications for the existence of an invisible reality that supports our world - or to put it in different terms, its implication that an action in one part of the world could cause an instantaneous effect in another remote part of the world without there being a perceivable connection (cf. McEvoy and Zarate, 1999, pp 168-170). For me the idea of traversing the distance between the physical and the screen-based world of computers is an assertion of this idea, even though in my approach the link between the two worlds is of course only 'make-believe'. Further, I considered that by implying a direct physical impact on the virtual image and vice versa, my approach seemed to challenge – at least in a metaphorical sense - Jean Baudrillard's concept of a 'hyperrealist' world where any direct experiences of the world are replaced by televised virtual images (cf. Baudrillard, 1993, pp 79+80; 1988, pp 11ff). Arguably, these contemplations would not directly impact on the further development of my approach into the final *UNCAGED* series. However, I feel mentioning them at this point is necessary with regards to a later section, where I will discuss the contextualisation of my approach within a socio-philosophical discourse about the relationships between the 'real' and the 'virtual'.

Methodology and creation of *UNCAGED*

The methodological approach for the further development of my initial studies into *UNCAGED* could be best described as experimentation and reconfiguration of existing technologies which result in new creative inventions and designs. This 'blue-sky research' was primarily led by my artistic taste and intuition that is informed by my professional expertise. Underlying this, however, was a variety of theoretical guidelines, ranging from formal and aesthetic considerations, the particular role of sound, aspects of HCI to social interaction.

While a detailed discussion of this theoretical framework would go far beyond the scope of this chapter I would like to summarise that the primary motivation behind my approach was to 'uncage' screen-based realities from the confines of their digital existence and to bring the remote computer world closer to our

human experience. In particular, my work was opposed to the notion of immersive Virtual Reality where the physical world is more or less excluded from the participants, but instead attempted to situate the virtual domain within the physical world. Further, unlike most other work in the area of Mixed Reality which combines the 'real' and the 'virtual' in rather complex ways - often involving video capturing devices, novel projection platforms, electronic tags or mobile computing technology - *UNCAGED* aimed at extending conventional screen displays into their physical surroundings (and vice versa) in very immediate ways. One of the ideas behind this approach was to be more referential to and explicitly challenge our normal experience of engaging with 'virtual media'.

The creation of *UNCAGED* can be separated into a research and development phase and a production phase. The former was primarily led by playful exploration of different possibilities to combine on-screen and off-screen events using a familiar technical set-up. By contrast, the production phase was led by more specific practical considerations, i.e. bearing in mind the eventual exhibition of the work at the V&A - National Museum of Childhood in London.

Throughout the creation of *UNCAGED* there has been a certain amount of collaboration on an artistic as well as on a technical level. While it is not always easy or appropriate to identify specific reasons for decisions concerning the artistic way of working, I would argue that my desire to collaborate with other artists is in some ways an organic extension from my group performance practice. With *UNCAGED*, I wanted to create an open platform where other artists could explore their ideas in the framework of my installation set-up.

My decision to collaborate with a team of technical experts is, of course, primarily a pragmatic decision, but at the same time it is grounded in my belief that with a multidisciplinary work, such as *UNCAGED*, it is problematic for the lead artist to become an expert in all of the areas involved, e.g. software programming, electronics etc. This is because by getting too deeply involved in all the technical details of the work, it is in my view very easy for the artist to

lose focus of the work's overall artistic unity. At the same time, I believe that it is important for the lead artist to have a certain level of expertise in all of the areas involved, and to be able identify what is technically possible and to communicate her requirements clearly to the technical experts. If this is not the case, the artwork can often be transformed into a mere showcase for technological possibilities, or, in the other extreme, not be realised to its full technical potential.

During the research and development phase around fifteen preliminary studies were developed which in many ways were quite similar to that already described. These potential exhibits were based on video loops and simple animations interacting with different computer controlled electronic devices placed around a screen display. In particular, all studies established transitions between the screen-based domain and the surrounding physical environment in a very direct or literal way.

More or less right from the start, I was convinced that *UNCAGED* could be interesting for a wide range of audiences, including children. I therefore felt it appropriate to approach the V&A - National Museum of Childhood in London (MOC) with regards to my project. After several meetings with the exhibition curator at the MOC during summer 2003, an exhibition of *UNCAGED*, featuring six exhibits based on my preliminary studies, was agreed for May and June 2004. The commission of my work for an exhibition at this particular space imposed certain requirements and, in a sense, marked the transition from the research and development phase to the production phase. For instance, the exhibits would have to be of relatively low height so they would be accessible to children. Furthermore, I felt inclined to emphasise on the playful character of my work and to develop exhibits reminiscent of familiar games or childhood themes. In order to increase the engagement with the eventual exhibits, I also figured that the introduction of user-interactive elements might be useful even though most studies were conceived without this possibility. However, I should point out that my primary interest was concerned with the audio-visual relationship between the on-screen and off-screen events of the exhibits and not with user-interaction

as such. In particular, I did not want to introduce highly complex user-interfaces, but instead make the user interaction as intuitive and evocative (of everyday interaction) as possible.

In this respect, I was very much stimulated by the approach taken by the Tangible Media Group at the MIT Media Laboratory. They advocate the use of every day objects as a basis for input devices with the rationale to look 'towards the bounty of richly-afforded physical devices of the last few millennia and inventing ways to reapply these elements of "tangible media" augmented by digital technology' (Ishii and Ullmer, 1997, p 236). Even though, my own approach did not involve everyday objects as such, it was designed to be evocative of familiar forms of interaction. For instance, I reasoned that, where appropriate, a simple push-button interface allowing participants to activate or play with an exhibit would be preferable to a more complex interface, like a motion capture device. This approach was also an important feature in the overall research design of the project because one of my research questions was to find out whether the, at least at the time, rather unusual onscreen/off-screen relationships of my work could generate 'sufficient' interest to capture a large audience without their being any complex forms of user-interaction.

On the whole, one could say that during the research and development phase there was a notion of divergence in terms of inventing a great number of possible exhibits. By contrast, the production phase was characterised by a notion of convergence, meaning that the most appropriate studies were selected and developed into high-quality exhibits, which could be presented to a public audience.

***UNCAGED* at the V&A Museum of Childhood**

For the exhibition at the MOC, *UNCAGED* has been developed into a series of six interactive installations which are linked by the common theme, to explore interrelationships and transitions between screen-based digital environments and their physical surroundings. *UNCAGED* incorporates different electromechanical devices and automated sculptures which interact, visually and

acoustically, with computer generated animations and video images. Participants can playfully engage with the installations via touch screens, tangible custom-made interfaces and simple pushbuttons. As a detailed description of the exhibits is not possible within the context of this chapter I refer the reader to the *UNCAGED* website (www.telesymbiosis.com), which features photos and digital video recordings of the exhibits at the MOC. While the digitisation of the practical output of my thesis provides a convenient way to convey an overall idea about the work, I would like to point out that the video recordings and photos do not replace the direct experience of the actual exhibits; an epistemological problematic which I will discuss further in the final section of this chapter.

UNCAGED was exhibited over seven weeks during May and June 2004 at the MOC. According to the museum's statistics over 30,000 visitors from a wide social, ethnic and educational background participated in the exhibition. For me, the wide range of audiences and the museum's policy that 'everything can be touched by the audience' - which is nurtured by the exceptionally discrete conduct of the museum's attendants and security staff - provided an ideal context to exhibit *UNCAGED*, as I was interested to find out if the exhibits would work on different levels and stimulate playful and explorative engagement by different types of audiences.

During the exhibition, I spent about three full days within the space to observe visitors' conduct with the exhibits and to attempt to speak with visitors about their impressions and experiences. Unfortunately, in many cases, it proved to be extremely difficult or inappropriate to initiate (in-depth) conversations with visitors about the work. This might have been due to the fact that many visitors arrived in groups with small children and were too preoccupied with keeping the group together, or the fact that in the fairly large museum space there were many other interesting exhibits which had to be visited within a limited time span. In particular, discussions about the conceptual aspects of *UNCAGED* frequently turned out to be not very fruitful.

As noted earlier, artistically, I was mainly interested in the perceptual, 'telesymbiotic' interaction between on-screen and off-screen events. However, I felt it would be useful to observe visitors' conduct from a user-interactive perspective in order to evaluate the extent to which the exhibits were able to engage audiences. I reasoned that from these general findings obtained I would be able to deduce more specific conclusions regarding my approach to combine the digital world of computers with the physical world.

While working on the theoretical framework of my approach, which paralleled the research and development phase of *UNCAGED*, I discovered that, in a public exhibition context, *UNCAGED* might resonate with recent findings by the Work Interaction and Technology (WIT) research group at King's College, London. In particular, I was interested to find out if my approach could avoid the problem of inhibiting social interaction amongst gallery audiences, which, according to the WIT group, is a major problem with many contemporary computer mediated museum exhibits. The group's research is primarily based on observations of audiences in museums and they have a particular interest in studying computer-mediated artworks.⁶

In spring 2003, I contacted Jon Hindmarsh, a senior researcher at the WIT group, to present my preliminary studies and ideas about *UNCAGED*, and invited him to conduct a study of audience behaviour during a possible exhibition of my work. Hindmarsh showed great interest in *UNCAGED*, and once I had arranged the exhibition at the MOC, he agreed to conduct a qualitative study of audience behaviour at the museum. In line with their broader research programme, their analysis of the audio-visual material paid particular attention to social interaction between visitors and how groups of visitors organise their collaborative exploration of the exhibits. At the same time, it includes comments about more general qualities of *UNCAGED* and about its presentation in the exhibition space.

⁶ See the WIT group's website at <http://www.kcl.ac.uk/depsta/pse/mancen/witrg/> for more detailed information about their research.

The findings of the WIT group, which were published in an internal report, proved to be an invaluable resource for the evaluation of my own observations. In particular, it enabled me to read my findings against theirs and, thus, increase the validity of my conclusions. I will demonstrate this approach with an example relating to the manner in which *UNCAGED* was presented in the exhibition space. Despite my strong reservations, the curator at the MOC insisted to install display notes next to the exhibits which explained, in a rather instructive manner, 'how to interact' with the artworks. Personally I rejected this type of note, because I wanted to encourage intuitive engagement and felt that it would be more rewarding for participants to playfully discover the exhibits rather than to follow some instructions. At first sight, this particular issue might seem rather peripheral and, indeed, my own observations during the exhibition revealed that most visitors would simply ignore the display notes. However, the WIT researchers noted that children who were accompanied by adults would often demand some sort of explanation about how to 'operate' the exhibits. In many cases the adults would then immediately refer to the labels for some help.

'However by the time the adults had read an appropriate section of the label the children were often very much engaged in "playing" with the exhibit. Therefore the adults then tended to attempt to strictly structure the child's activities in order to get them to follow the instructions from the labels. Directions such as "stop doing that for a moment" often featured heavily in these sequences' (Best and Hindmarsh, 2004, p 9).

Despite the apparent demand for an explanation about how to operate an exhibit, I would argue that the above scenario illustrates above all that visitors (in this case the children) were perfectly able to engage with the exhibits by intuitively starting to play with them. It appears to me that the presence of the display notes distracted some adults from exploring the exhibits 'hands-on' together with their children and, instead, led them to rigorously instruct their children.

Obviously, in the context of my intention to stimulate explorative behaviour in audiences, this observation is extremely disappointing. Further, as I have pointed

out before, the main focus for me was the perceptual interaction of the exhibits' on-screen and off-screen events and artefacts, and I believe that this notion was still conveyed even if participants made some wrong assumption about the user-interactive parts. Surely, one cannot rule out that in some cases people might have simply turned away from the exhibits if – due to the lack of instructive notes - they would not have been able to make sense of them. However, in my view, it is less of a problem to lose some part of the audience than to limit playful exploration of the work by offering manuals for the exhibits.

In further support of my aversion against instructive labels for *UNCAGED*, I would like to add that shortly after the exhibition at the MOC, I was invited to present one of the exhibits (*Glitchy & Scratchy*) at the ZKM - Centre for Art and Media in Karlsruhe, Germany.⁷ In this case, no instructions were given on the display note and I did not record a single case of visitors not knowing how to interact with the exhibit. According to reports from the ZKM staff, the exhibit has since become a favourite with audiences and in 2007 the ZKM purchased the exhibit for inclusion in their collection of interactive art (followed by the acquisition of two further *UNCAGED* exhibits in 2009).

For further details regarding my qualitative study of audience behaviour at the MOC, I refer the reader to my PhD thesis (Nuhn, 2006). For now, I would like to sum up that the overall level and quality of user interaction as well as social interaction was extremely encouraging. This, arguably, subjective interpretation, has been reflected in observations made by the observers of the WIT group:

'Whereas many pieces of interactive art fail to engage their audience by being overly complex or badly explained, or situated in institutions which normatively seem to discourage hands-on engagement, much of the interaction we recorded in the Museum of Childhood could be deemed successful. They supported playful engagement with complex technologies – a rare feat in contemporary museum. Moreover the exhibits supported and encouraged many forms of participation and gave rise to numerous

⁷ For details about *Glitchy & Scratchy* at the ZKM please visit http://www01.zkm.de/algorithmische-revolution/index.php?module=pagemaster&PAGE_user_op=view_page&PAGE_id=88 (10/10/2006).

forms of innovative engagement (e.g. the development of multi-party games around *Square Pusher*; the imitation of DJ-ing in *Glitchy & Scratchy*, etc.)' (ibid, pp 11+12).

Certainly, on the basis of my own and the WIT group's observations, one cannot be certain about what exactly made *UNCAGED* such a success with the audiences. However, I would argue that in the light of a ubiquitous presence and accessibility of – in terms of complexity of (games) design, user-responsive graphics and sounds, etc. - far more elaborate interactive entertainment media, e.g. arcade games, game consoles, commercial multimedia applications, the fascination with *UNCAGED* cannot be explained by the possibilities of user interaction as such. In my view, this fascination is mainly related to how the user interaction affects the 'telesymbiotic' dimension of the work, namely the interaction between the on-screen and off-screen elements of the exhibits. I would therefore suggest that, on the whole, my ultimately very simple approach to perceptually bridge the gap between screen-based realities and their immediate physical surroundings has been successful.

Revised view of *UNCAGED*

Thus far, the underlying tenor of this chapter has strongly resonated with the initial motivation behind *UNCAGED*, to uncage computer based realities from the confines of their digital existence and to bring the remote computer world closer to our human experience. This very motivation certainly expresses some degree of critical awareness about mainstream developments within digital technology industries at the time. In particular, my own approach can be seen as an attempt to provide a possible alternative to the, widely pursued area of immersive Virtual Reality, where the physical world is more or less excluded from the participants.

However, as a whole, my argumentations so far, have not questioned the potential of digital technology to be incorporated within our lives in meaningful and satisfying ways, but, if anything, sought to undermine the dominant paradigm of their developments and applications. I must confess, though, that this relatively optimistic narrative only reflects in part my attitude towards the project. In reality, things have been much more ambiguous and, in part, the

UNCAGED project (including the previous theoretical account of it) has been a struggle to give meaning and understanding to an idea which began to crumble before it was even fully realised.

Already, during the early stages of the research and development phase of *UNCAGED*, but in particular after the work had been completed, I began to question the initial motivation behind the project. I believe that my reservations towards this, with hindsight, rather starry-eyed agenda arose from two coinciding, arguably interrelated, notions. First, my critical examination of the work itself nourished the impression that despite the perceptual fusion between the digital and the physical world, *UNCAGED* actually seems to highlight the distance between the two domains. In my view, all six exhibits bear an underlying absurdity, which arises from the very fusion between their physical and digital components. For me, this absurdity ultimately hints at the fallacy of the initial motivation behind *UNCAGED* and, in a wider context, questions the very idea to seek in virtual worlds a place for meaningful human exchange and experiences.

Second, temporally coinciding with, but not necessarily causally linked to the creation of *UNCAGED*, my former enthusiasm for the computer as a working tool was clouded by a growing frustration and, to put it bluntly, my reluctance to spend a good deal of my life (isolated) in front of the computer screen.

Admittedly, in the light of my original motivation, one could argue that the very objective of *UNCAGED* was precisely about improving our relationship with digital technology, and that therefore *UNCAGED* could be regarded as a step towards overcoming my own frustration with the computer. I do believe that *UNCAGED* is successful in bridging the gap between the digital world and the physical world on a perceptual basis, and I feel the six installations certainly incorporate digital technology in a rather enjoyable and stimulating way.

However, for me the fusion between the digital and the physical world in *UNCAGED* only seems to work within the context of installation art or simply games, but ultimately, applied to 'real life', it does not offer much hope to make the digital world a more satisfying space to engage with.

This negative, or at least disillusioned, evaluation might come as a surprise for the observer of *UNCAGED* and/or reader of the preceding sections of this chapter. Retrospectively, it is difficult for me to trace whether the absurdity perceived in the work appeared to me as a sudden revelation, or whether it was not always inherent in the conception of the work. I was always aware that the fusion in *UNCAGED*, between the virtual and the physical world, would be some kind of make-believe situation. Right from the start, there was surely a certain amount of humour, maybe even irony, within my approach, and I did not claim to offer 'real' solutions for improving our relationship with the computer. At the same time, there was also a great deal of personal amazement regarding the effectiveness of this very simple and direct way to link the physical and the virtual world, and, if at all, I did not perceive the absurdity of my experiments as a problem regarding the initial, 'humane' motivation behind the project. Whereas in most other Mixed Reality approaches this absurdity might be veiled or distracted from the participants through greater technological sophistication or an overall subtler approach in mixing the virtual with the physical elements, I would now suggest that the simplicity of my approach brings to light an intrinsic absurdity of the very idea to fuse the physical with the virtual world.

As mentioned earlier, since the beginnings of *UNCAGED* I had been interested in the writings of Jean Baudrillard. Initially, I took his rather apocalyptic 'prophecy' of a total virtualisation of our world, or the 'murder of the real'⁸ as he has put it, as a challenge against which to measure my own approach. However, in the light of my shrinking optimism in the possibilities of humanizing the virtual world of computers, I felt it useful to revisit and deepen my understanding of his texts, relevant to the issues at stake, with the hope to find some clues or answers to exactly why I had the impression that my project had failed. In particular, I was interested to explore further his accounts on the specific nature of the virtual and how it differs from the 'real'.

⁸ Cf. Baudrillard, 2000, pp 61ff.

In summary, from my understanding of Baudrillard, one could argue that there are four different notions of reality. First, there is 'primary reality', the realm we commonly refer to as the real world. According to Baudrillard, our primary reality is a world of appearances and we are only experiencing it as the 'true real', because we seem to have succeeded in objectivizing these appearances and, in this way, brought into existence a 'reality effect'. Importantly, in Baudrillard's view, this reality effect is merely a simulation of a true real as it is based on an ontological simplification of the world, which ignores its ultimate strangeness or otherness (cf. Baudrillard, 2003). Second, there is a hyperreal universe, produced by our contemporary mediascape, i.e. television, advertisement and (real-time) digital technologies. Both realities seem to seamlessly overlap and it is increasingly difficult for us to make a difference between the two. What is more, it is actually the hypereal which engenders primary reality (cf. Baudrillard, 1994). Third, underlying primary reality, there is a more profound reality, a kind of 'hinterworld', which hides behind the world of appearances through the 'radical illusion' of the world. Importantly, for Baudrillard it is this radical illusion of the world which is the opposite of simulation and not the real, or primary world. To this third kind of reality we do not have direct access, but it is vital to keep alive the world's mystery, the notion of the Other. Baudrillard suggests that, in our artificial universe the illusion of the world is being destroyed by simulation and that the Other is now only experienced through forms of Evil (cf. Baudrillard, 1993). The fourth notion of reality would be a perfected form of hyperreality, a kind of fully immersive Virtual Reality, where these last vestiges of the Other are lost, because in Virtual Reality, there is no place for an underlying profound reality. This is because Virtual Reality is a completely simulated world based solely on the actualization of computational data (cf. Baudrillard, 2005).

When applying the above framework directly to *UNCAGED*, one could consider the screen-based domain of the exhibits as being an instance of the second notion of reality i.e. hyperreality and the physical domain as being an instance of primary reality, the world of appearances. In this light, then, the idea behind *UNCAGED* to bridge the gap between the physical or primary world and the

screen-based world of computers seems rather naïve. Not, though, in the sense that this project would be doomed to fail because of an unbridgeable distance between the two domains, as implied in my initial critical interpretation of *UNCAGED*. On the contrary, it seems naïve, because, according to Baudrillard, the virtual, hypereal world is already inextricably linked with primary reality. In a sense, the perceptual fusion between the physical and the virtual artefacts of *UNCAGED* reiterates, at least in a metaphorical way, Baudrillard's idea about the sameness between the real and the hyperreal; the idea that, ultimately, both are simulations.

Even though I do not fully subscribe to the extremity of Baudrillard's assertion that primary reality amounts nowadays to nothing but simulation, I would argue that the problem with *UNCAGED* and, by extension, the very idea of mixed reality, is that by combining the virtual world with primary reality, the latter seems to be reduced to the same ontological level as the former. On the other hand, maybe in a more positive light, one could claim that *UNCAGED* actually puts a very ironic slant on Baudrillard's ideas. This is because, once we consider *UNCAGED* as a reflection of our simulated universe - comprising of a nexus of virtual artefacts and physical appearances - we are confronted with a grotesque exaggeration of the matter. In my view, this irony is engendered by the extremely direct and simple approach of *UNCAGED*, or better, by reducing the rather complex technical-scientific-psychological-sociological-historical nexus between the real and the hyperreal to a series of straightforward one-to-one relationships.

With hindsight, I would contend that the real problem with *UNCAGED* is not related to the work itself, but rather to my motivation to make the virtual computer world a more 'humane' place to engage with, and my concern to offer new directions to overcome our difficulties to engage with computers in a satisfying way. I now hold the view that my research approach should instead have been more open. In particular, it should have been guided by a more neutral question, that is, to ask for the consequences of combining the physical domain with the virtual domain in a very direct way.

Not surprisingly, my critical evaluation of *UNCAGED* demanded a radical rethinking of my practical approach. Originally, I had the intention to create a subsequent body of work, where the transitions between the physical and the virtual world as well as the user interaction would be more seamless and technically sophisticated. I assume that it is obvious from my post-*UNCAGED* reflections that a development in this direction would have been extremely inappropriate. Instead I figured that my new artistic projects should not be concerned with perfecting the perceptual and interactive level of *UNCAGED* but with exploring further the socio-philosophical issues implied in *UNCAGED*.

While there is no room in this chapter to discuss my subsequent practical work I would like to point out that, at the very least, my theoretical reflections on *UNCAGED* - based on Baudrillard's ideas about the real and the virtual - have provided me with a new heightened sensitivity with regards to the role of (digital) technology in my artistic work.

Retrospective reflection on mixed-mode PhDs

While I believe that my PhD project, to some extent, serves as good example of how practical and theoretical research can be combined successfully I also have some strong reservations about the validity and relevance of this kind of approach. In the remainder of this chapter I will discuss some issues that have arisen from a critical reflection on the very idea of mixed-mode PhDs.

To begin with, I would like to address a problem concerning the actual format of presentation of mixed-mode PhDs. My own thesis comprises a book of about 150 pages with text and images accompanied by a DVD (attached to the back cover of the book) featuring a video recording of *UNCAGED* at the Museum of Childhood. I have little doubt that the vast majority of people consulting my thesis in a library will initially access the work by reading through (parts of) the text and only if they are highly interested in the subject, might make the effort to locate a DVD player and engage with the audiovisual part provided. Consequently, the presentation format of my PhD foregrounds the written part of the project and sidelines any audiovisual engagement with its practical dimension. In the light of

the very topic of my PhD, to combine physical and digital events and artefacts in new engaging ways, this rather inelegant way of presenting the outcomes of my research seems retrospectively very unimaginative, conventional and, in some ways, even ironic.

A very straightforward attempt to achieve a better balance between the written and the audiovisual parts of the thesis might have been to get rid of the paper version and simply provide all information on a single medium, i.e. a DVD containing both the *UNCAGED* video and an electronic version of the written thesis. Banal as this might seem, this format would certainly have encouraged viewer-readers to pay more, possibly primary, attention to the audio-visual part of the thesis and to consult the written part in a more or less complimentary manner. Unfortunately, PhD regulations at Middlesex University do not permit this kind of submission format but require a bound paper copy adhering to precise formatting specifications. With this in mind, there is an immediate need to revise research regulations at Middlesex and, supposedly, many other research institutions.

Having said this, the digitisation of the written text might engender other, maybe more severe problems. In the specific case of my own thesis, following the successful viva, I have been led to provide a PDF version of the paper-based part of my submission. This PDF now circulates 'freely' on the Internet and access to the audiovisual dimension is provided through web addresses within the text pointing at online video recordings of the *UNCAGED* exhibits. Whereas it requires not much of an effort for the reader to follow up the links while studying the PDF on an online computer, it is also very likely that the audiovisual dimension is, in this form of presentation, even further reduced to a mere addition or illustration of the theoretical arguments. Further, in an even more depressing scenario, the downloadable PDF might be read in offline mode making immediate consultation of the videos impossible or the respective computer might not have installed the necessary plug-ins to view the videos, making their consultation much less attractive and, hence, less likely. Finally, the idea of digitising the book of my thesis seems somewhat incoherent with my critical view on the pervasion of

digital technology through our lives that has emerged from my PhD research. Apart from the argument that a paper-based dissertation, unlike a digital dissertation, does not bear the risk of becoming inaccessible in the future due to changes in digital formats, I would also contend that the printed book is simply more pleasurable to read and encourages 'deeper' engagement with the material than does a digital document to be read on-screen. This is, I believe, a view shared by many readers but is also often criticised as being an overly nostalgic attitude. As a very concrete example suggesting an irreplaceable quality of paper-based material I would like to mention that a great number of academics – who, on the whole, are 'perfectly happy' to carry out many tasks at the computer – tend to print out (important) digital documents in order to study them in depth.⁹ What is more, some of the features often readily accepted as being clear advantages of digital documents, such as being easily searchable and globally accessible via the Internet, pose at closer inspection some serious problems. For instance, the facility by which electronic books can be searched for specific keywords might encourage superficial engagement with the material and promote referencing of fragments 'instead of considering whole expressions or arguments'. Seen in the wider context of current trends in online culture, e.g. the idea of 'the noosphere, which is a supposed global brain formed by the sum of all brains connected through the Internet', fragmentation of material can even lead to anonymity of authorship, which 'is what happens today with a lot of content; often you don't know where a quoted fragment from a news story came from, who wrote a comment, or who shot a video' (Lanier, 2011, pp 45-47).

Either way, the idea of the practical part having become sidelined in the submission format of my thesis, is extremely frustrating because, for me, it constitutes the more important part of my research. i.e. it is my primary contribution of new knowledge and understanding to the (research) community. In line with Stephen Scrivener, I would argue that the practical dimension of my project 'already contains the activity of research, understood as

⁹ One should bear in mind that printing out documents involves considerable costs and might not be a viable option for readers who don't have free access to printing facilities.

that function which expands [its] field's potential and relevance'.¹⁰ Further, while the written part certainly facilitates very direct access to issues and insights embedded within the practical dimension, it provides only one of many other possible perspectives of understanding it and, thus, is likely to limit the perceptual, affective and epistemological potential of the practical work. This more or less prescriptive way of understanding the work resonates with the aforementioned problem of displaying instructive notes next to the exhibits discouraging intuitive and exploratory engagement with the work and impeding on 'new discoveries' to be made.

In turn, the emphasis on the practical part of the thesis raises questions concerning the presentation and documentation of the artworks. Whereas the video recording of *UNCAGED* might convey some overall idea about the work, it differs profoundly from a first-hand experience of it. Given the initial motivation behind *UNCAGED*, to extend the digital domain into the physical domain and vice versa, it seems almost absurd having "boxed up" the artworks within a conventional video frame for examination and archiving purposes. While it might be difficult to conceive of better, alternative ways for creating an audio-visual record of the practical work, a fundamentally different route to challenge the above problem of representation might be to consider more creative ways of writing (about) the artworks. Rather than trying to provide a more or less neutral description of the artistic outputs, which I have attempted in my thesis, a more phenomenological approach accounting for the conscious experience and subjective perception of *UNCAGED* might have been preferable. This might include the use of metaphors and an overall more poetic way of writing, capable of engendering the same kind of immediate sensibility as the actual experience of the physical artworks.

The problem of representation also has implications for the importance that should be given to the PhD viva, both from the student's perspective and the examiners' perspective. Coincidentally, in the case of my own project, the external

¹⁰ Cf. Stephen Scrivener's webpage at: <http://www.chelsea.arts.ac.uk/17858.htm> (last accessed on: 25.03.2011)

examiner had visited the exhibition at the MOC and was therefore able to base his evaluation on actual experience rather than on the provided recordings only. However, this was pure chance (the external examiner had not yet been chosen at the time of the exhibition, nor was I aware that he had visited the show) and will of course not be the case for the majority of people consulting my PhD. While it would have certainly been a considerable effort to install *UNCAGED* at the viva, I now feel that the creation of a dialogue between the theoretical account given in my thesis and the direct physical experience of the work by the examination board would have added an invaluable epistemological validity to the examination process and emphasised my standpoint of the practical work being the central outcome and contribution to knowledge and understanding of my research project. Further, in order to increase the impact and relevance of the viva, in particular where a live and/or physical component is central to the research, the opening up to a wider (academic) public should be more seriously considered and encouraged. Obviously, these considerations become more or less irrelevant where the practical component of the research activity as well as its outcomes take place within the digital domain, such as Net Art, Software Art, Digital Video and Electronic Music.

With regards to the 'truth value' of the written part of my PhD I would like to make one final point. While I don't want to suggest that I have been lying in my thesis, I have to admit that in order to construct a coherent narrative, I have often felt obliged to present certain issues, especially regarding the development of my artistic work, in drastically simplified, possibly distorted ways. Most importantly, I have omitted that fact that since 2003 - coinciding with the research and development phase of *UNCAGED* - I have started to develop a shared artistic practice with Cécile Colle. While this collaboration might not have had a major impact on the final outcome of *UNCAGED*, it certainly played a key role in the critical assessment of *UNCAGED* and, obviously, radically changed my, or better *our*, post-*UNCAGED* practice. What is more, it also undermines my rather linear account I have provided regarding the development of my artistic practice. This is because, in collaboration with Cécile, I had produced a body of work before *UNCAGED* had been completed, which implies a much more critical

view on 'new technologies' and the notion of interactivity than my motivation for *UNCAGED* might suggest.

Exit-Wall: In lieu of a conclusion

In the light of this retrospective evaluation of my PhD project, both the written part and the representation of the artworks by means video recording might be viewed as a quasi-interface to the original, physical artistic output. Like an interface the thesis provides direct, and more or less standardized, access to some knowledge and understanding embedded within *UNCAGED*. At the same time, though, it also constitutes a barrier hiding away or distracting from other possible perspectives and physical experiences of the work. This viewpoint is in line with my theoretical and artistic research on the intrinsic nature of the interface and has been resumed paradigmatically in my recent collaboration with Cécile Colle, *Exit-Wall* (Fig. 1).



Fig. 1: Exit-Wall (2010) by Cécile Colle}{Ralf Nuhn

Dimensions: 406 cm x 225 cm x 10 cm

200 exit sign boxes, permanent magnets, multi-sockets, metal structure

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